

Your reliable hydrogen partner

🗨 Consulting 🛠 Engineering ⚙ Operation and Services



How to Start with Hydrogen?

Ulf Lemke, Head of Hydrogen
Chiemeziem Anele, Project engineer

Group

H₂-Activities within the group



KARLSSON

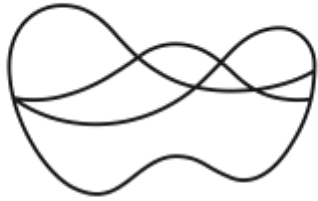
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Customers & Partners



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Services

Ingenion GmbH

Consulting & Planning

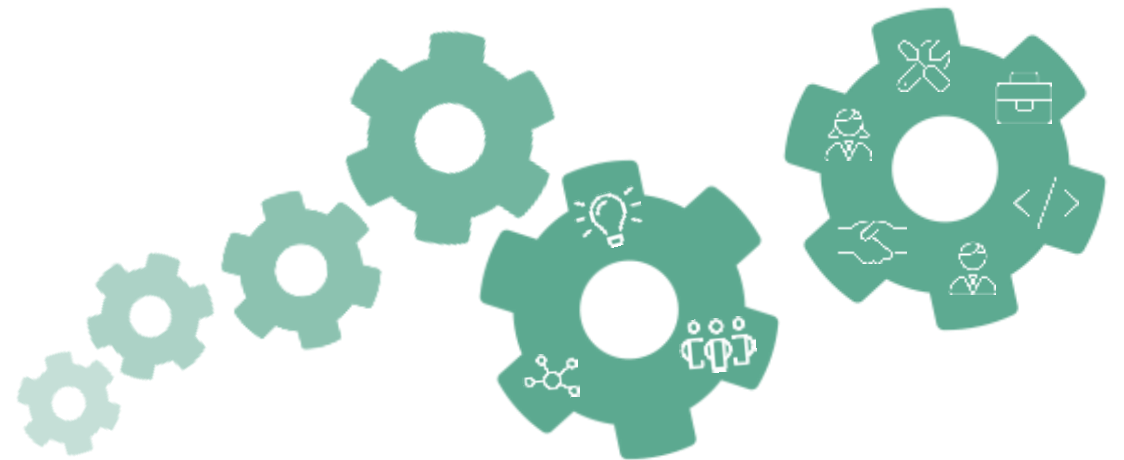
- Feasibility studies
- Site analysis & concept development
- Advice on subsidies & application for subsidies
- Design & approval planning
- Tenders & Co.

Project management & construction implementation

- Project implementation
- Construction & project management
- General Contractor
- Options:
 - a. Turn-Key-Solution
 - b. Sub-projects
 - c. Own projects

Operation & services

- Production monitoring
- Maintenance & Service work
- Adaptations
- Extensions
- Optimisations



Experience

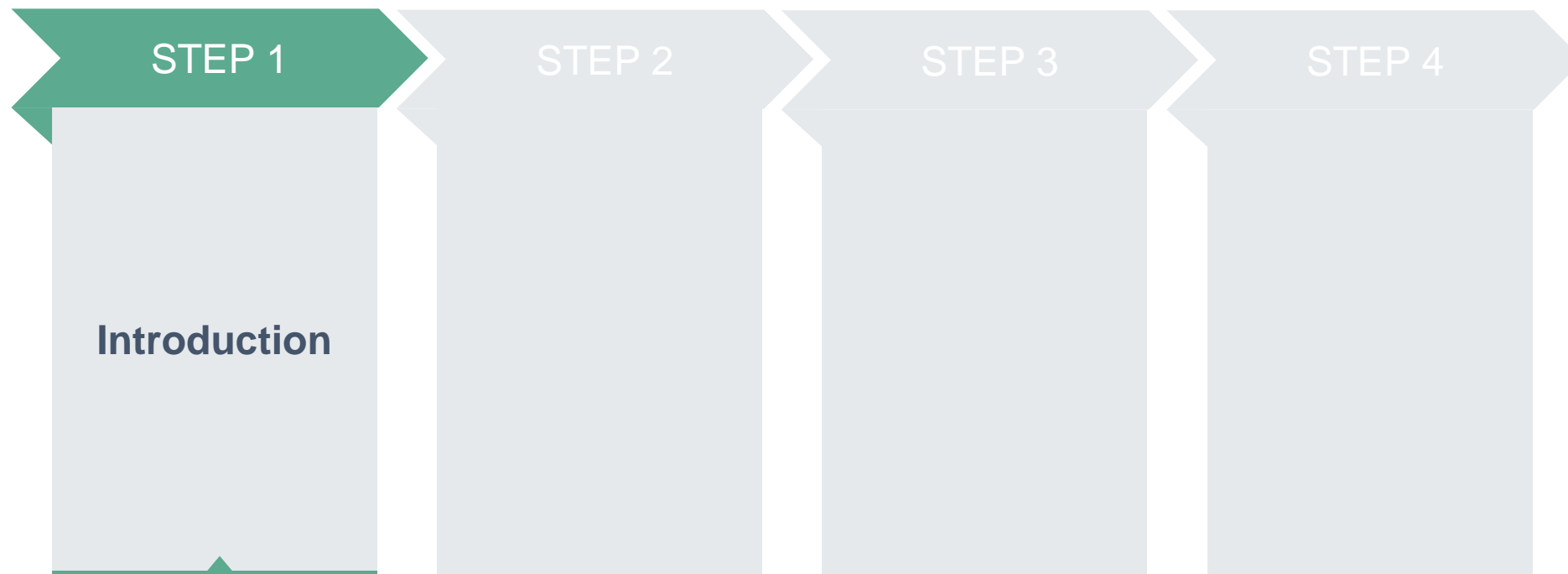
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Navigating hydrogen projects, public & private roles, financing, and funding.



Steps



Getting started

Know your role!

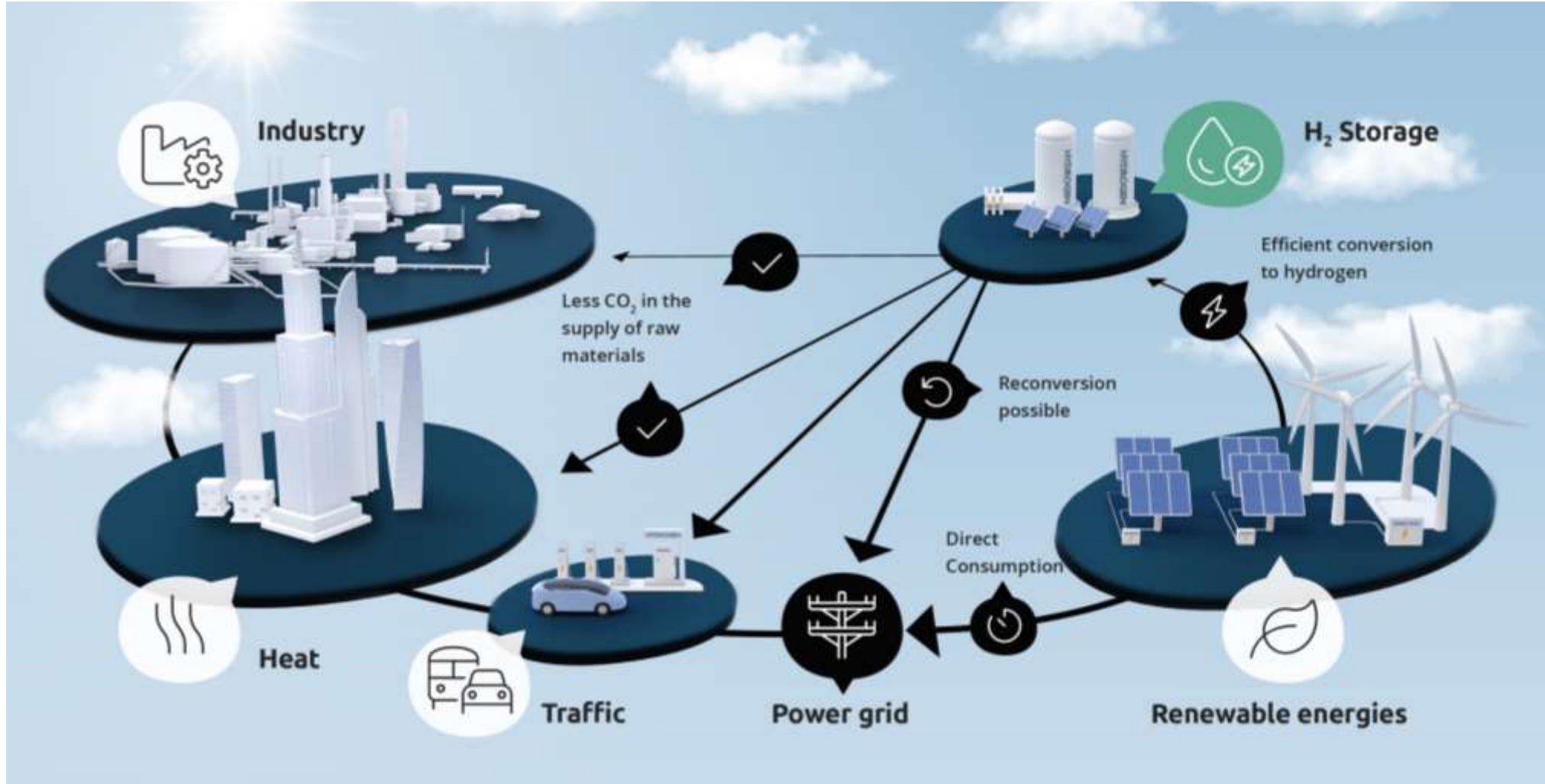
- Become aware of your expertise and that of your team!
 - Supposed knowledge costs unnecessary money!
 - Leverage on the strengths of your team
- What capacities can you free up in your team or yourself in the long term?
 - A Hydrogen-project can take 3-5 years, depending on the regulatory requirements and the availability of subsidies
- Establish partnerships with key stakeholders in the hydrogen industry.

Identifying potential project opportunities!

- Industrial
- Transportation
- Energy storage
- Utilization

Your potentials

Hydrogen market



Steps



Second Step

The role of an expert

- Understand the Hydrogen market
- Unique value proposition
- Partnerships
- Develop project plans and timelines
- Project execution and compliance with safety and environmental regulations



The Expert

- Technical experts
- Market Experts
- Policy Experts

Ask Intelligent Questions

- Does public transport have to have its own HRS?
- Do local authorities have to operate the H₂-production of a sewage treatment plant themselves?
- Doesn't it make sense to concentrate on your strengths?
- Is there a long-term effect of hydrogen projects on local communities?

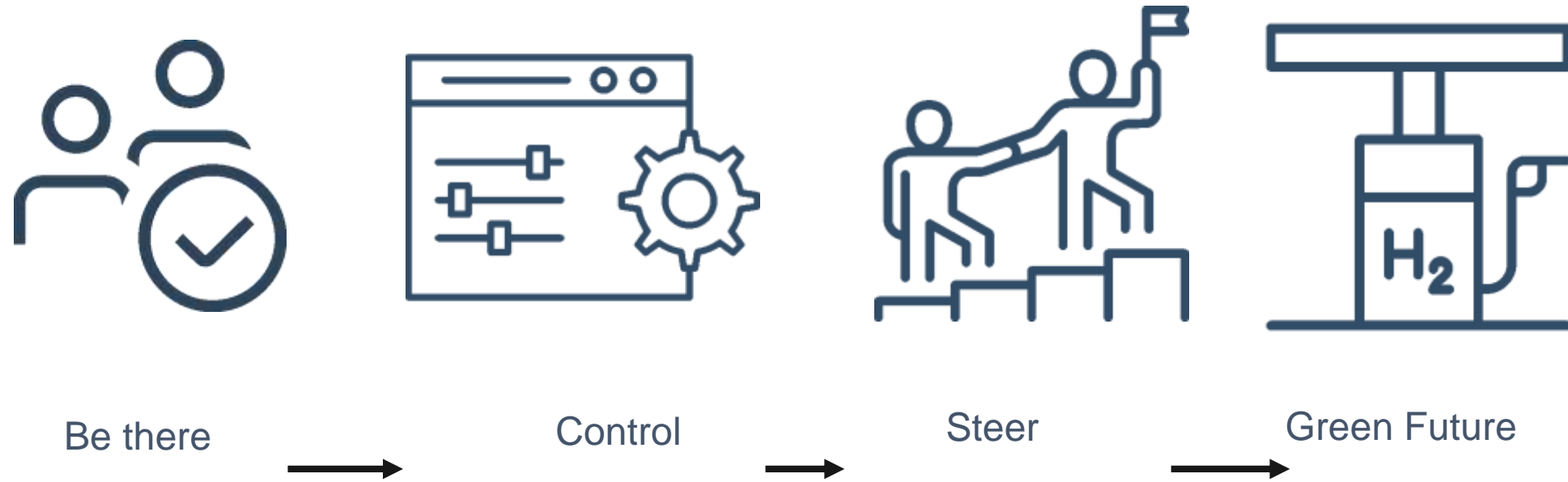


Steps



Third Step

Roles of the public sector

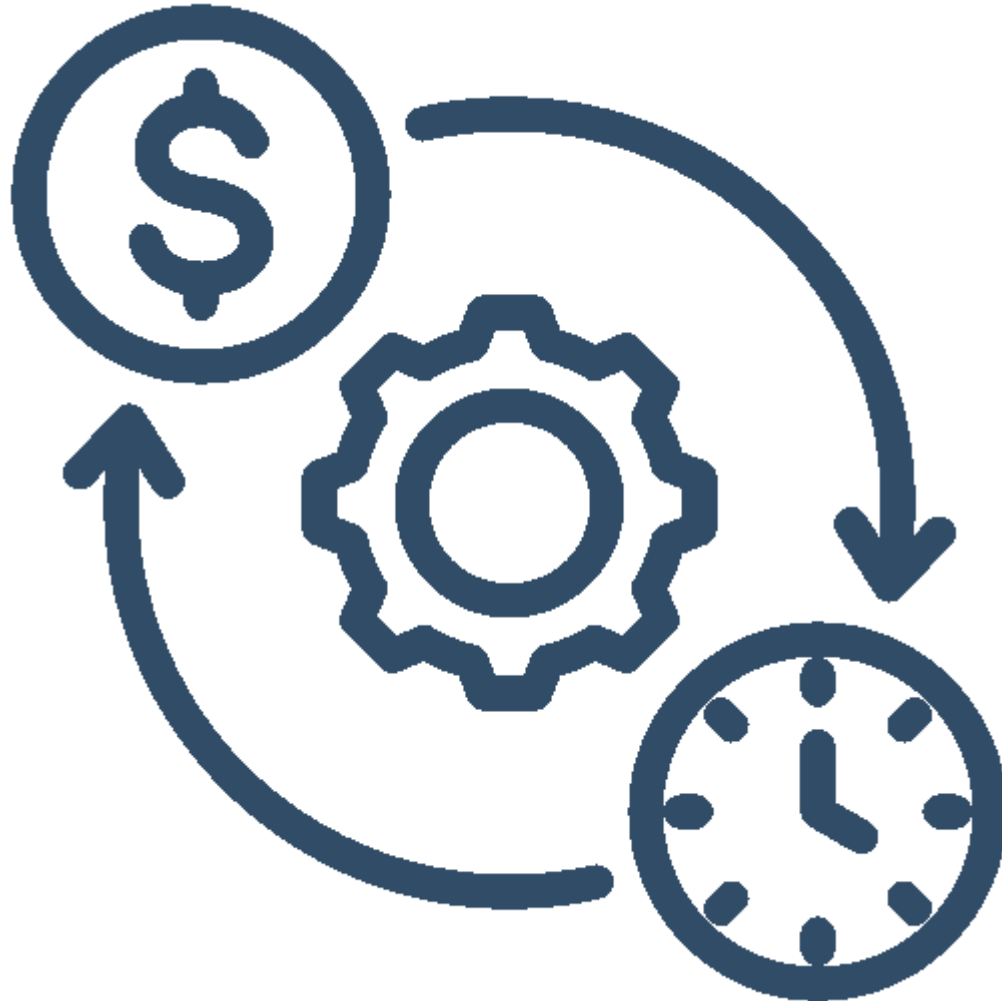


Steps



Fourth Step

Manage costs



- Track expenses and ensuring fiscal responsibility
- Rigorous financial analysis when evaluating the viability of a hydrogen project
- Identifying opportunities for cost savings and optimization
- Discuss key financial metrics such NPV, IRR, PBP etc.

Don't do it like Hannover

!

Mehr als 100 Millionen Euro teurer

+ **Kosten explodieren: Stadt stoppt Wasserstoffprojekt im Klärwerk Herrenhausen**

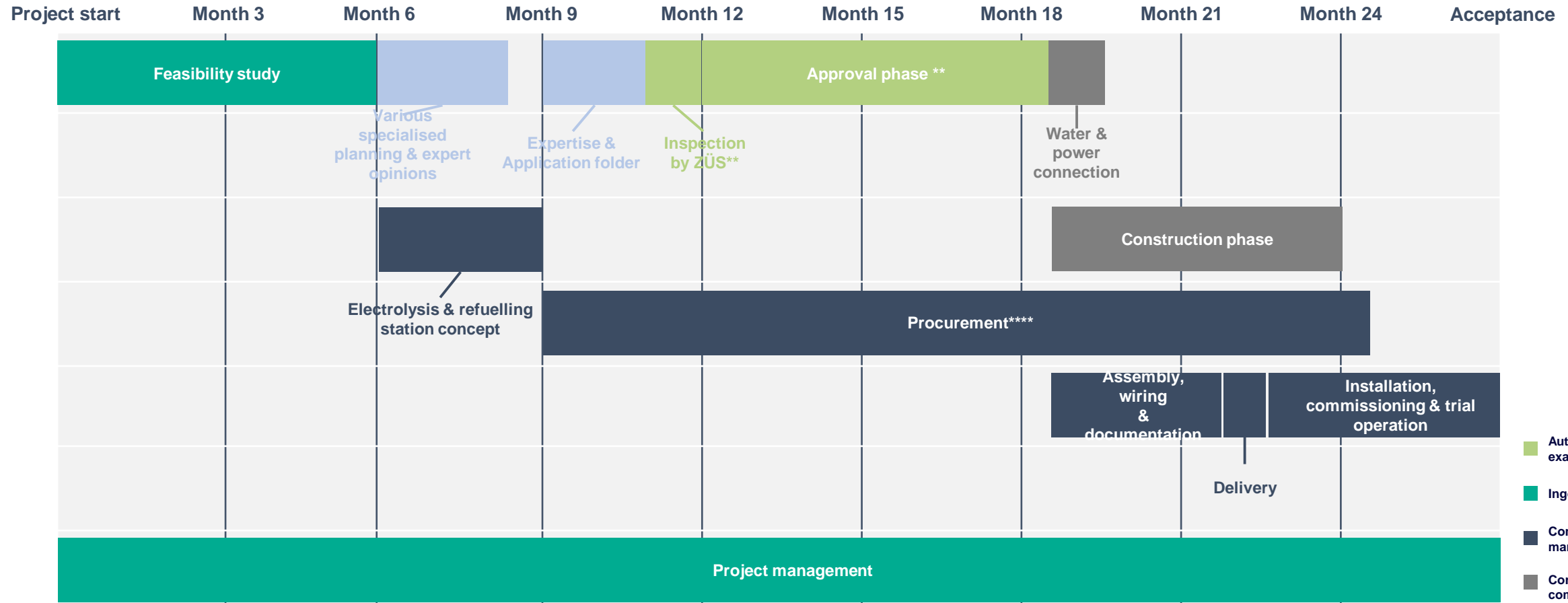


<https://www.haz.de/lokales/hannover/kostenexplosion-wasserstoffprojekt-im-klaerwerk-hannover-herrenhausen-gestoppt-NFJYSUQYGVGLNPJ4CFPLO3R7I4.html>

Facts:

- 20 MW planned for 20 Mio. €
 - Who said this was realistic?
- Costs increase up to 136 Mio.€
 - For what?
- 4,4 Mio. € already spent
 - For ...?
- 20 MW-Stacks = 25-30 Mio. €

Typical time line



- Duration depends on type and scope
- ** Duration depends on third parties (suppliers, authorities)

Conclusion

Key Points:

- The importance of strategic planning, market understanding, and collaboration across sectors
- Call to action: Embrace the opportunities in the hydrogen market for a sustainable energy future
- Underestimating the complexity of hydrogen projects or safety and regulatory compliance
- Common pitfalls in hydrogen project development: technical, financial, regulatory.

Contact



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